

Math 357  
Short quiz 04

2024-01-24 (W)

Your name: \_\_\_\_\_

As you join your friends for another meal, one of them hands you a paper napkin on which the following has been scribbled:

$$f : \mathbf{Z}/(3) \rightarrow \mathbf{Z}/(3)$$

$$f(t) = t^3 - t$$

- (a) "The function is zero," one of your friends whispers in awe. Briefly provide the most convincing justification you can for this assertion.
- (b) "But the polynomial is not zero in  $(\mathbf{Z}/(3))[t]$ !" your particularly opinionated friend declaims. Briefly provide the most convincing justification you can for this assertion.